

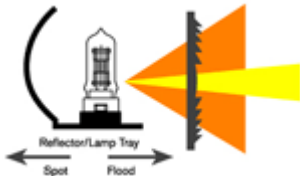
# What is a Fresnel?

Fresnels are the workhorses of stage lighting and the most common luminaire (light) used on stage.

They are called a 'Fresnel' because they use a 'Fresnel' lens, recognised by the characteristic 'stepped' moulding on one face and the texturing on the other, named after its designer, Augustin Fresnel.

This Fresnel lens produces a very even light that is soft at the edges and tends to project a soft shadow. Because the edge of the light is soft, it is not absolutely precise and will blend easily with the edges of other Fresnels to give smooth stage coverage.

SOFT EDGE = the centre of the beam of light is bright and gradually darkens towards the edges.



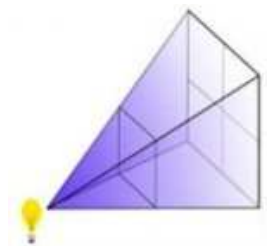
The beam is a cone of light so the size of your lit area increases as the throw distance from the Fresnel to that area increases. However, the beam angle of this light cone can be altered by a focus knob that changes the distance between the lamp and the lens. As the lamp (with its reflector) is moved towards the lens, the beam becomes wider, and as it moves away from the lens, the beam becomes narrower.



This adjustment is accomplished on Selecon Fresnels using a unique posi-slide lamp and lens focus system located on the left hand side (looking from the front) of the luminaire using a focus knob which simply slides back and forth.

## A detailed knowledge of light's behaviour and measurement is not required to light a production however you will need to know about the INVERSE SQUARE LAW:

When a beam of light leaves a spotlight, the area illuminated by the beam increases as it goes further away from the spotlight. The same quantity of light must illuminate larger areas. If the distance from the light source to the surface (otherwise known as 'the throw distance') is doubled, the intensity drops to 1/4 of the original. This happens because the illuminated surface is now four times bigger.



Above: Production of Black Ice. Lighting Designer and Photographer: Andrew Malmo.

## What does this mean when lighting a stage?

Take two actors (A and B) on a stage, both lit by the same spotlight. If the distance from the spotlight to B is twice the distance from the spotlight to A, then B will only have a quarter of the light illuminating A.

This is one of the reasons why a number of lighting positions are needed. Lighting positions are needed over the stage, on the side of the stage, on the side of the auditorium as well as in front of it to provide lighting that illuminates as well as creating an emotional response.

With the wide beam range Fresnels are very versatile, often used for stage colour washes as well as selective highlighting and modelling.

When set to flood beam the Fresnel will cast some low-intensity spill light outside the main beam which can be a nuisance if the luminaire is close to a scenery border or wing.

The spill of scatter light can be controlled by an accessory called a **barndoor** which mounts onto the front of the Fresnel. The barndoor has four rotatable flaps that can be used to mask the beam.

**HANDY HINT:** Please take care when using barndoors - they do extend out in front of the luminaire and have the potential to cause damage should curtains, gauzes or flown/moving scenery be caught on them.

## Q: Which Selecon Fresnel is right for my venue / school / performance space?

- Small to medium size venue - **ACCLAIM Fresnel 6°-60°**  
220V-240V : 500W/650W  
120V : 500W / 575W / 650W
- Mid to large size venue – **RAMA 150mm / 6” Fresnel 7°-50°** or **RAMA 175mm / 7” high performance Fresnel 7°-56°**  
220V-240V : 1000W/1200W  
120V : 750W/1000W
- Larger stage, studio and concert hall – **ARENA High Performance Fresnel 8°-60°** or **ARENA Theatre Fresnel 7°-60°**  
220V-240V : 2000W/2500W  
120V : 2000W

**To summarise: the Fresnel gives you control of the beam size and the barndoor gives you control of the beam shape however, a Fresnel has no adjustment for beam quality; by choosing a Fresnel luminaire you are choosing a soft edge**

